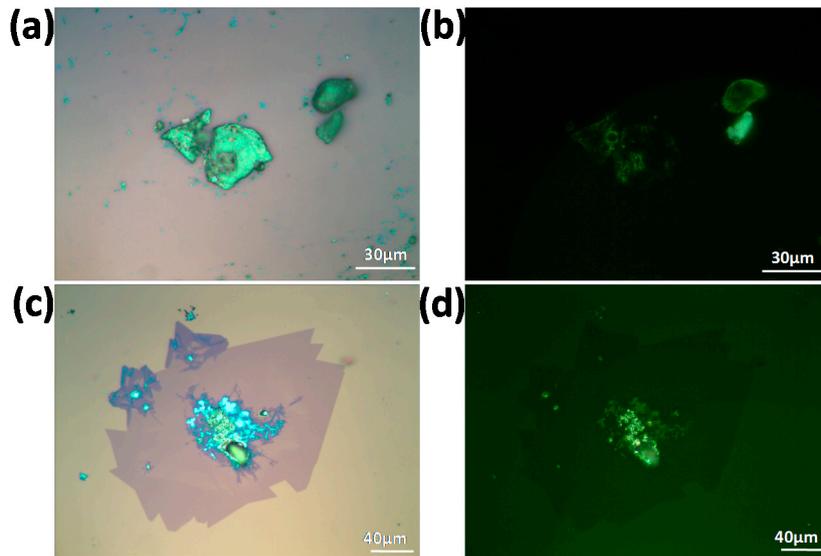
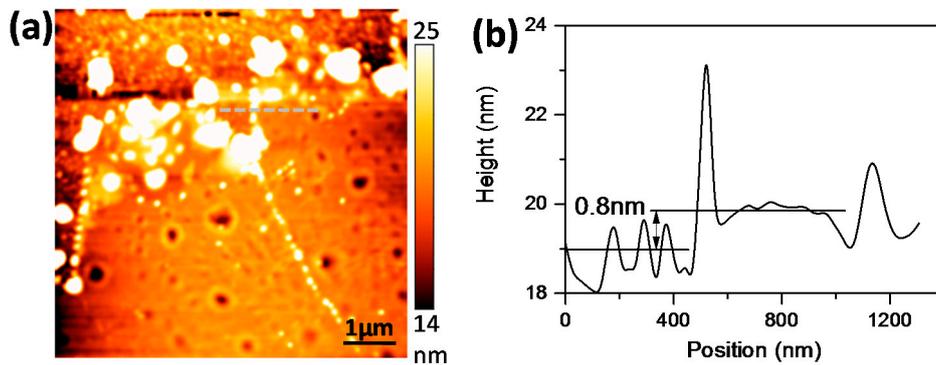


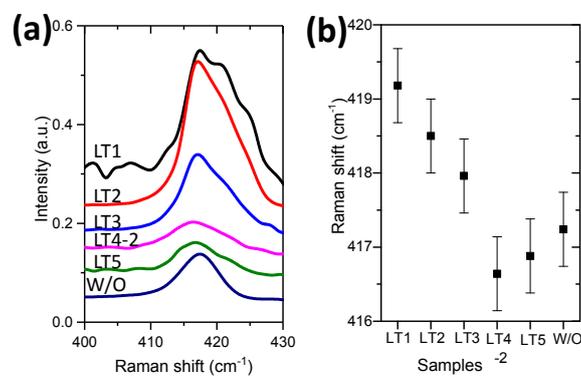
Supplementary Information



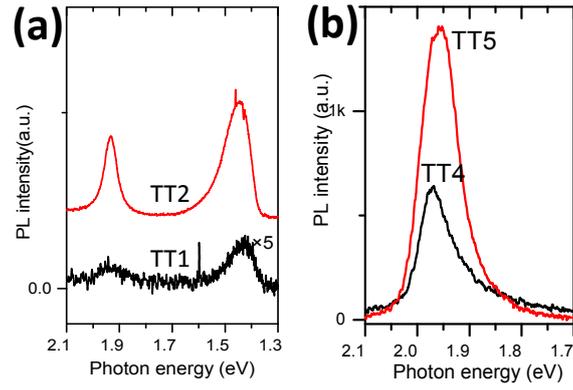
**Figure S1.** Optical image of a mxene flake at parallel (a) and cross (b) polarization; Optical image of a mxene coated with monolayer WS<sub>2</sub> measured at parallel (c) and cross (d) polarization.



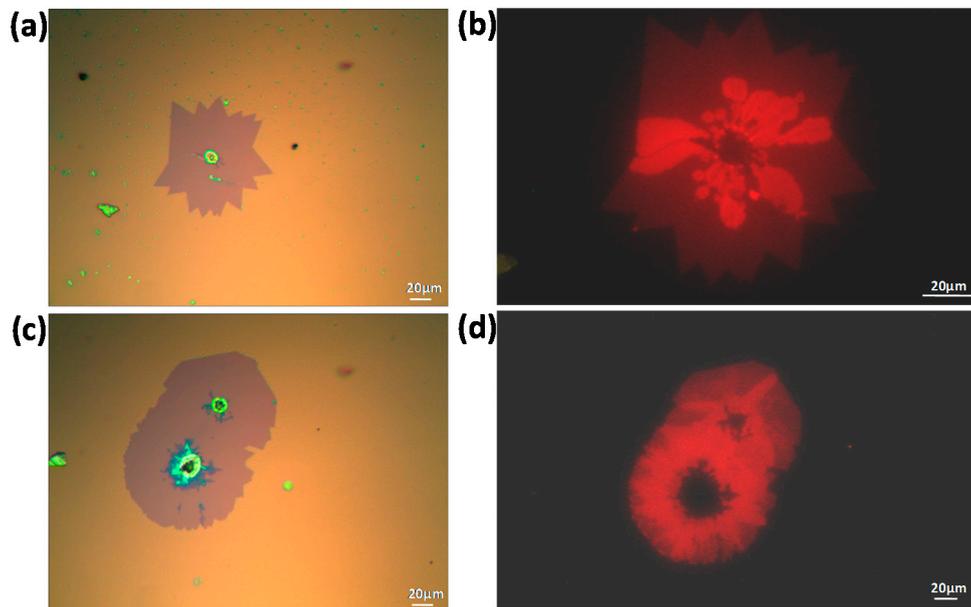
**Figure S2.** (a) AFM image of a corner of a monolayer WS<sub>2</sub> flake marked in Figure 1h; (b) the height profile of this flake along the dashed line in (a).



**Figure S3.** (a) A<sub>1g</sub> Raman peaks of different WS<sub>2</sub> flakes; (b) The fitted A<sub>1g</sub> peak positions of different WS<sub>2</sub> flakes. W/O denotes the monolayer WS<sub>2</sub> flake deposited without mxene.



**Figure S4.** (a) PL spectra collected from locations TT1 and TT2 (marked in Figure 3a,b) the top of mxene in T1 and T2; (b) PL spectra collected from locations TT4 and TT5 (marked in Figure 3d,e) on the top of mxene in T4 and T5.



**Figure S5.** (a,c) Optical images of two monolayer WS<sub>2</sub> flakes and their corresponding PL images (b,d), respectively.